Year 7	Computer Systems / Hardware and software	Programming & Development	Algorithms	Information Technology/Digital Literacy	Data Representation	Communication/networking
Emerging	Understands computer systems need to be programmed. Understands the difference between hardware and software.	Knows that users can develop their own programs, and can demonstrate this by creating a simple program. They understand that programs execute by following precise instructions. They can execute a program,checking for errors.	Can understand what an algorithm is and can express simple algorithms using symbols. Understands computers need precise instructions.	Can use software under control of teacher e.g. office and google suite to create, edit, store digital content using apporpriate file and folder names. Knows common uses of information technology beyond the classroom.	Student recognises that digital content can be represented in many forms. They can distinguish between some of these forms and can explain the different ways that they communicate information.	Obtains content from the world wide web using a web browser Understands the importance of communicating safely and respectfully online
Developing	Recognises and understands the digital devices considered as computer systems we use in our daily lives. Recognises and can use a range of input and output devices. Understands how programs specify the function of a general purpose computer	Can create a simple program, and detect and correct simple syntax errors. They can use logical reasoning to predict the behaviour of programs.	Can understand that algorithms are implemented on digital devices as programs. Can find and correct errors i.e. debugging, in algorithms and can also use logical reasoning to predict outcomes.	Can use technology with increasing independence to purposefully organise digital content. Uses a variety of software to manipulate and present digital content, data and information. Talks about their work and makes improvements to solutions based on feedback received	Recognises different types of data: text, number Appreciates that programs work with different types of data	Navigates the web and can carry out simple web searches to collect digital content Demonstartes use of computers safely and responsibly, knowing a range of ways to report unacceptable content
Securing	Understands the components of CPUs and their functions. Knows that computers collect data from various input devices, including sensors and application software.	Student can create programs that implement algorithms to achieve given goals. They can declare and assign variables.	Can design simple algorithms using loops, and selection i.e. if statements. Can use logical reasoning to predict outputs, showing an awareness of inputs.	Collects, organises and presents data and information in digital content. Creates digital content to achieve a given goal by combining software packages and internet services to communicate to a wider audience. They make appropriate improvements to solutions based on feedback received, and can comment on the success of the solution.	Student understands the difference between data and information. They know why sorting data in a flat file can improve searching for information. They are able to use filters or can perform single criteria searches for information.	Understands the difference between the internet and world wide web Shows an awareness of and can use a range of internet services Recognises what acceptable and unacceptable behaviour is when using technology and the internet
Advancing	Understands the difference between hardware and application software, and their roles within a computer system. Knows the difference between physical,mobile and wireless networks	Understands the difference between if and elif and else statements. Can understand and use While loops effectively. Can read snippets of code and understand what the output would be.	Can design solutions (algorithms) that use repetition and two-way selection i.e. if, elif and else. Can use flow diagrams(flowcharts) to express solutions.	Student makes judgements about digital content when evaluating and repurposing it for a given audience. Recognises audience when designing digital content. They use criteria to evaluate the quality of solutions, can identify improvements making some refinements to the solution, and future solutions.	Student performs more complex searches for information e.g. using Boolean and relational operators. They can analyse and evaluate data and information, and recognises that poor quality data leads to unreliable results, and inaccurate conclusions.	Understands how to effectively use search engines, and how search results are selected. Demonstates responsible use of technologies and online services.
Mastering	Is able to explain the purpose and need for ROM and the purpose of RAM(computer memory) Understands the difference between RAM and ROM uses Understands the use of virtual memory	Understand and use selection (both IF... and IF...ELSE...) effectively in coding challenges. Understand and use a range of comparison operators in both selection and iteration effectively. Able to use a procedure.	Student shows an awareness of tasks best completed by humans or computers. They can recognise that different solutions exist for the same problem. Designs solutions by decomposing a problem and creates sub-solution for each part.	Evaluates the appropriateness of digital content to achieve given goals. Evaluates usbaility of visual design features when creating products for a known audience. Designs criteria for users to evaluate the quzlity fo solutions.	Student knows that digital computers use binary to represent all data. They know that computers transfer data in binary.	Understands data transmission betrween digital computers over networks e.g packet switching and IP addresses.